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ABSTRACT

This report discusses the effectiveness of strategy-based writing instruction for adolescents with language-based learning disabilities. The instruction is being provided to Canadian students in grade eight who are at least two grade equivalents below their peers in reading and writing ability. The students are taught a paraphrasing strategy that can be applied to the writing as well as the reading of expository texts. Students are immersed in reading and writing activities within their zone of proximal development and guided in the application of the paraphrasing strategy in order to scaffold their reading and writing development. The aim is to begin to redress the cumulative deficit that these students experience in language and school-based literacy, and also to provide practical tools that they can use in their courses across the regular grade-eight curriculum. This report begins by briefly describing the curricular, instructional, and social contexts of the "Foundations 8" classroom and how the writing strategy instruction was situated, or contextually embedded, within the classroom processes. Preliminary findings of the students' perceptions about their writing indicate they prefer to write on the computer and that students who wrote their essays longhand used more strategic stopping. (Contains 15 references and 2 tables.) (CR)

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Running Head: Strategy Interventions for LLD Writers

Strategic Interventions to Improve the Writing of Adolescents with Language-Based Learning Disabilities

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Strategic Interventions to Improve the Writing of Adolescents with Language-Based Learning Disabilities

Many students who function at a low literacy level in elementary school because of a language-based learning disability (LLD) enter junior high school without the reading and writing skills necessary for school achievement. These students are at risk for school failure, dropout, and constrained career opportunities. At one junior high school in our northern school district, we have initiated a multiyear intervention project in which strategy-based remedial reading and writing instruction is provided to such students entering grade eight. The purpose of our current research is to evaluate and improve the within-classroom interventions, especially with respect to the writing strategies being taught.

The students that we have been working with (Foundations 8) begin grade eight at least two grade equivalents below their peers in reading and writing ability. Many of these students, on entering grade eight, are reluctant to engage in tasks involving reading or writing. Some have developed avoidance strategies, so that they spend little time actually engaged in reading or writing, and therefore continue to fall further behind their peers. Others demonstrate behaviors that disrupt their peers, pose classroom management challenges for teachers, and put themselves at increased risk for suspension and, ultimately, early school leaving.

Our writing and reading interventions are strategy-based. That is, we teach the students a paraphrasing strategy based on the research of Schumaker, Denton, and Deshler (1984) that has been adapted by Mothus (2001) so that it can be flexibly applied to the writing as well as the reading of expository texts (Wong, 1996; Wong, Butler,

Ficzere & Kuperis, 1996). We immerse the students in reading and writing activities within their zone of proximal development, and guide them in the application of the paraphrasing strategy in order to scaffold their reading and writing development. Our aim is to begin to redress the cumulative deficit that these students experience in language and school-based literacy (Lapadat, 1991; Nelson, 1994), and also to provide practical tools that they can use in their courses across the regular grade eight curriculum. As stated by Wallach and Butler (1994): "access to print means access not only to content knowledge and cultural literacy but also access to the language of academic success" (p. 6).

Our research on the effectiveness of this strategy intervention for reading shows that students in previous years have made marked gains in their reading (Mothus 1997; Mothus & Lapadat, 2001). Prior to initiating the current study, we had begun evaluating the efficacy of the writing strategy intervention through informal observation (Mothus, 2001). These preliminary results suggested that the students receiving this strategic writing intervention appeared to make gains in their expository writing, but exhibited difficulties in self-regulating the use of the task-specific strategies they had been taught. They continued to require a great deal of structuring and support by the teacher to initiate and complete writing tasks. These preliminary findings are consistent with a growing body of research on self-regulation of strategic learning and the challenges it poses for students with LLD (Graham, Harris, MacArthur & Schwartz, 1998; Graham, Harris, & Troia, 2000).

Aims and Overview of the Study

Our research project includes three complementary strands (see Table 1). The first strand of the research examines writing strategy instruction nested within the

instructional and curricular contexts of the classroom. One immediate purpose of this strand is to describe the sorts of structuring and support presently delivered by the teacher in order to identify aspects that the students can take over and learn to self-regulate. Another purpose is to describe the interconnectedness of the instructional, curricular, and social elements in the realization of the writing strategy instruction. Finally, over the longer term, these descriptions will lead to refinement and sharing of this approach for broader implementation.

Insert Table 1 about here

The second strand explores what barriers (motivational, cognitive, metacognitive, and self-regulatory) the students perceive as inhibiting their writing productivity, and examines whether the students' perceptions change as they learn to employ writing strategies. In particular, we are interested in the students' explanations for the brevity of their written essays, and the match between their explanations and the writing processes we observe in the classroom, as well as the characteristics of the written samples themselves. Also, we are interested in describing the metalinguistic remarks about their writing and the types of metacognitive reflections about strategy use that the students express.

Both of these strands inform the final strand, which involves selection and implementation of self-regulation strategies, as well as evaluation of the intervention's effectiveness. Specifically, we consider the effectiveness of computer assisted writing in promoting both motivation to write and effective application of the writing strategy

(MacArthur, 2000; Utay & Utay, 1997). We also examine the role of peer interaction activities, such as small-group brainstorming as a prewriting process, and peer conferencing at the revision stage. To evaluate the effectiveness of the writing strategy intervention, we have collected pre and post writing samples, as well as samples of writing of each of the essay types taught throughout the semester. We are analyzing the writing samples using several measures, including length (word count), syntactic complexity (T-unit analysis), semantic cohesion (Struthers, 2001), and quality (BC Education Performance Standards – Writing).

Other aims include the following. We plan to compare the progress of the Foundations 8 students, with respect to learning expository text structures, and learning and self-regulating use of the PAR writing strategy, with the progress of peers in regular grade eight English classes. We plan to do a trial implementation of this writing strategy approach in a grade six/seven inclusive classroom setting. Finally, we plan to reflect on wider systemic factors beyond the classroom that impact on the implementation of strategy interventions such as this in junior high school settings.

In this paper, we present a brief description of the curricular, instructional, and social contexts of the Foundations 8 classroom, and describe how the writing strategy instruction was situated, or contextually embedded, within the classroom processes. We also present some preliminary findings on the students' perceptions about their writing.

Curricular, Instructional, and Social Contexts to Support Reading and Writing

Remediation of reading and writing difficulties occurs within the context of a social milieu that is framed by the classroom and the curriculum. In this section of the paper we examine the curricular, instructional, and social elements, and describe how the writing strategy instruction is situated or contextually embedded within classroom processes.

The Curricular Context

Curriculum within the grade 8 English program consists of appreciation of literature through comprehension of short stories, novelettes, novels, myths, and poetry; instruction in and mastery of the conventions of writing such as spelling, grammar, punctuation, sentence structure and writing style; familiarity with writing genres such as narrative, descriptive, and expository text. Grade 8 students must demonstrate competence in reading comprehension and skill in paragraph or essay writing to successfully enter grade 9. Specifically, writing products students complete include appropriately constructed informative and argumentative essays assigned in such cross-curricular areas as social studies and science as well as English. While expectations for program completion are high, approximately 30% of all students entering grade 8 may experience difficulty with any one of these components of the English 8 curriculum (Mothus, 1997). Furthermore, students with LLD may not be aware of the text structures inherent in the English language.

The Instructional Context

Within inclusive settings these students generally fail to complete many of their courses (Mothus, 1997). Within typical learning assistance programs, many of these

students resort to absenteeism and negative behaviours in an attempt to cope with failure (Mothus, 1997). While streaming of students raises many questions, approximately 20-25 students with LLD in our school are placed in the Foundations 8 class to take part in the remediation of reading and writing deficits. They participate in all regular grade 8 classes with the exception of their English 8 instruction, which is provided within a streamed-by-ability class context. French 8 is given up to provide an extra 90 hours of English 8 instruction. This extra 90 hours provides the time needed to teach the strategy intervention model (SIM) including the paraphrasing (RAP) (Schumaker, Denton, & Deshler, 1984) and writing strategy (PAR) (Mothus, 2001) in an interactive process with the regular grade 8 English curriculum. However, the motivational and behavioural difficulties encountered by these students and their teachers is a continuing concern.

The Social Context

Students with LLD may experience associated motivational and behavioural difficulties which affect learning processes. Comparison with more able students affects self-esteem and motivation. Failure affects motivation to continue to struggle with learning. Concentration may be affected by knocks on the door, loud noises in the hallways where students may be videotaping a skit for drama, vice-principals wandering through the classroom, student laughter and loud teacher voices from the next-door classroom, or intervening events in school life such as assemblies and student walkouts. If peers are not making noise within the classroom or in the hallway, then the loader scraping snow away from the walls of the school rattles the building in seismic proportions. These distracting events take priority over anything that occurs within the classroom where failure is a regular event for some students. Students with LLD require a

great deal of structure in classroom procedures and in instructional procedures. They also require a quiet, non-competitive atmosphere, a rare commodity within a school building. Anything out of the ordinary is a preferred distraction to students who would rather not struggle with reading and writing.

In the school in our study, the easily distracted and socially unskilled student may also be selected to participate in the Foundations 8 program to address any deficits in the English language arts and associated social/ behavioural problems. Participation in a streamed-by-ability class reduces peer to peer comparison of success or failure. A smaller class population allows more teacher and student interaction. A streamed class allows specific instruction to address specific language-based learning problems. While this results in a difficult to teach class, and while this requires a strong and experienced teacher, our previous research indicates these students attend school daily more often and stay in school longer in contrast to students who attend learning assistance programs. Furthermore, teacher ratings of student behaviours were more positive in comparison to students participating in learning assistance classes (Mothus, 1997).

Students are asked to work independently as well as in partnerships or groups of three to four students in most classes. Many of the students with LLD interact as parallel players rather than cooperative players and find partnerships and group work ineffective. Although they like to be seated with a partner, they do not know how to talk to each other to help each other in solving a problem or to encourage divergent thinking. They continue to work independently while sitting beside someone. Furthermore, social skill deficits prove to be problematic when students are asked to work together. Partners insult each other, or are more interested in off-task behaviours such as the retelling of weekend

stories; partnerships are battles in one-upmanship and negative competitions. Therefore, problems in reading and writing delays and socio-behavioural difficulties are addressed through a class structured by a tightly organized classroom environment and the strategies intervention curriculum.

Curricular Structures and Supports to Address Reading and Writing Deficits

A strength of the Foundations 8 program lies in the teaching of strategies such as SIM to improve reading comprehension and writing ability through awareness of text structure. The content of the Foundations 8 curriculum begins with a one-month intensive reading instruction unit in short story, novel, and other narrative literature to improve reading comprehension. While students read short stories and novels, they simultaneously learn to identify the text structure of short story, novelette, and novel through the writing of summary essays. Text structure within the English short story and novel genre follows a specific pattern consisting of introduction to setting, character, and problem or conflict, plot development, theme development, counterplot, and resolution. Narrative text structure is most familiar to students since our understanding of our lives is based on story telling and follows specific conventions that are sub-consciously familiar to students. Most students know how to tell a story. Students in Foundations 8 become aware of text through the unravelling of narrative text structures and the writing of summary essays to reconstruct narrative. They learn to identify text structure with their covert understanding of story structure. A unit consisting of short story instruction brings text structure of narrative and story to conscious awareness.

Once students have explicitly examined the text structure inherent in narrative through the summary essay, that same knowledge is applied to recognition of text

structure in other genre such as writing of informative and argumentative essays. As with narrative text structure, students become aware of text structure in writing, learn to identify written text structure, and learn to use that text structure to write a large array of essays. The text structure within most 5-paragraph informative and argumentative essays consists of: 1) an introductory paragraph, (thesis of essay, outline of essay, purpose of essay), 2) three body paragraphs consisting of information or arguments on sub-topics discussed within the essay, and 3) a concluding paragraph (thesis restated, outline restated, and purpose of essay re-supported. Evaluation of this text structure occurs through the BC Ministry of Education Performance Standards.

Since students in Foundations 8 demonstrate deficits in reading comprehension, the utilization of a paraphrasing strategy (RAP) remediates these reading comprehension deficits (Mothus, 1997). RAP is: Read a paragraph, Ask yourself what is the main idea and three important details, Write the main idea and details in your own words. As students read and paraphrase, information and ideas are collected and rewritten in the students' own words to demonstrate interaction with the text and to develop cognitive ability and comprehension. While learning to paraphrase information to increase comprehension fulfills a primary purpose of the Foundations 8 program, reconstructing that information into written texts such as informative and argumentative essays results in a second focus of the paraphrasing strategy which we have called the writing strategy or PAR (Mothus, 2001).

The PAR strategy forms the basis for instruction in written text structure in our intervention classroom. The writing strategy is an adaptation of the paraphrasing strategy. A second step in developing writing competence, following on paraphrasing of text,

requires students to collect a wide variety of information on a specific topic and to draft that information into an appropriately constructed essay. Following on brainstorming or collection of information, PAR is: Put your ideas into categories, Ask yourself what is the main idea of the category, and Record the main idea and details into a paragraph in your own words. Students are then expected to write informative or argumentative essays by taking and supporting a position, argument or thesis and by developing that thesis with appropriate supports and evidence. Within this course students typically write up to 10 informative and argumentative essays.

Instruction in the writing strategy or PAR is a recursive, spiralling process of interactions between the paraphrasing strategy and the writing strategy. As soon as students have learned to paraphrase and write ideas without plagiarizing, the RAP strategy is turned around to write essays using the text structure learned through the paraphrasing strategy. The RAP paraphrasing strategy can be compared to the pulling apart of the knitting and the examination of its text structure-- the unravelling of the code of narrative and expository text. The PAR writing strategy consists of putting the text back together using knowledge of text structure; knitting back together the strands and threads into a different piece of work. Generalization and self-regulation occur as students apply the strategies to a wide variety of essays for a variety of disciplines such as science 8 and social studies 8.

Curricular materials include expository texts from textooks, encyclopaedias, and videos. A good example of well-structured expository style video-texts include Lorne Greene's Wild Animal Kingdom series and particularly *The Architecture of the Beaver*. It demonstrates a tight text structure in documentary form. Other videos in the series do not

conform to as tight a text structure and challenge the students' ability to create a tight text structure by picking apart the deficits in the videos and creating a tighter structure in written form. Students are also made aware of writers who may have failed to use tight text structure in their writing of school textbooks and to edit their work. They learn that many professional writers do not write perfectly.

Instruction in essay writing typically follows a deductive linear process where the student identifies a topic, creates an outline, writes an introduction, goes to the library and finds the information, fills in the outline, and writes a conclusion. The writing process includes pre-writing, drafting, writing, and editing procedures which may not recognize that many students are not linear thinkers. The top down deductive linear model of essay development, where the student begins with a thesis, creates an outline, and then finds the information to complete the essay, does not meet the cognitive skills and styles of all students.

I (Trudy) explicitly teach and model several means of assembling an essay with the idea that some students would understand and prefer one method over another. I talk about and model inductive bottom-up procedures such as finding and collecting information first; secondly identifying the nature of information available, classifying it by putting like ideas together, and identifying categories; and finally adding more information to the categories. Students could choose their own label for categories as they became aware of the nature of the information they had collected. Rather than a linear process writing becomes a recursive and developing process. Developing a thesis might occur at the end of the writing task. Once students could competently write the body of the essay they were taught to add an introductory paragraph and a concluding paragraph.

This process allows the student to use what information they have rather than expecting them to find information without being sure if they could plug the holes of a predetermined outline.

Instruction in the writing strategy is embedded within a streamed classroom of approximately 20 similar-ability students who may also experience a variety of motivational and behavioural difficulties. Also embedded within this classroom context is the desire to deliver and complete the regular English 8 curriculum successfully. The strategy intervention model is not supplementary to English instruction but is the heart of the program. The aim is to teach strategically, to focus always on strategy acquisition rather than content or skill acquisition. Skill bits are taught within the context of strategy instruction, not as discrete sections but always in the context of a larger picture, that is text structure, and strategic development of cognitive skills through reading and writing.

Students' Perceptions About Writing

One consistent finding of research on writing with students with LLD is that their writing output is abbreviated in comparison with that of non-LLD peers. Graham et al. (1998) comment: "The papers of students with LD are inordinately short, containing little detail or elaboration, and once an idea is generated, they are very reluctant to discard it" (p. 393). This describes what we have observed about the writing output of our Foundations 8 students in past years. Graham and his colleagues propose three possible explanations for the brevity of these students' compositions:

One, they may be unknowledgeable or uninterested in the topics they write about.

Two, they may terminate the composing process too soon, before accessing all

> they know. . . . Three, they may lose or fail to generate possible content because of interference from poorly developed text production skills. (p. 393)

One of our purposes in this study is to investigate the factors that might contribute to our participants' abbreviated writing output. We are taking a three-pronged approach to this question: 1) observation of the students' actions while they are in the process of composing an essay (including interval observations of apparent on-task or off-task behaviors, and notations of specific actions they engage in while composing); 2) examination of their written compositions for evidence of writing processes (e.g., crossing our a word or phrase and rewriting it is indicative of revision); and, 3) individual interviews with students to elicit their perspectives and elaborated explanations about their reasons for stopping while writing, taking a long time to get started, or finishing quickly. Using these three sources of data, we hope to triangulate on the factors in play in the composing processes of these adolescents.

At this point, we are at a preliminary stage of analyzing the Foundations 8 data. I (Judith) am going to give you a snapshot of the data collected via the individual interviews about reasons for stopping in conjunction with the baseline longhand expository "special gift" essay, and the baseline computer expository writing sample on the topic of "what I want to do when I grow up."

To probe students' perspectives about their reasons for stopping, we developed an informal 25-item Likert-style questionnaire, which we administered to the students verbally on a one-to-one basis following the completion of each of the above-described essays. Examples of questions are: "I could not think of ideas to write about." "I could not think of a certain word I wanted to use." "I was distracted by other students." "I was

having trouble with my handwriting or keyboarding." Students were instructed to "tell me if each reason for stopping writing that I read out was true almost always, quite often, sometimes, not usually, or almost never" with respect to the essay they had just finished writing.

We considered a somewhat broader set of possible factors that might impact on composing processes than did Graham et al. (1998). Factors that might slow down or impede the composing process include constraints related to activation, prior knowledge, organizing or sequencing, retrieval, encoding, attention, motivation, and motor skills/organization.

Difficulty knowing how to start, or, once stopped, in initiating writing behavior again, was considered indicative of an activation constraint. Difficulties generating content knowledge or accessing knowledge about processes of writing were considered to indicate constraints in prior knowledge. Organizing and sequencing constraints included difficulty organizing information at the sentence, paragraph, or whole-text levels. Retrieval constraints included trouble retrieving from memory specific vocabulary items, text structures, or steps in the writing process. Encoding constraints included difficulties at the phonological (spelling), lexical (vocabulary choice), and syntactic (sentence) levels of linguistic encoding. Attending constraints included difficulties related to directing attention and sustaining concentration on the writing composition task at hand. Motivation constraints address students' interest levels, effort, self-efficacy, and valuation of writing. Motor skills constraints included difficulties with handwriting, keyboarding, or organizing and using writing materials/tools. Finally, we judged some kinds of reported stopping not as constraints but rather as "strategic stopping" that we

believed to be indicative of strategy use, and therefore characteristic of compositions that were both longer and better formed in terms of expository text structures.

By sorting all of the questionnaire responses according to these factors, we were able to compare the students' reasons for stopping in their baseline longhand composition with their baseline computer assisted composition. Preliminary exploratory findings are discussed in terms of students' perceptions about the positive effects of writing on the computer rather than longhand, and their perceptions of the negative effects of writing on computers (see Table 2).

Insert Table about here

As can be seen in Table 2, when composing on the computer, students reported stopping less due to linguistic constraints related to organizing, sequencing, retrieving, and encoding information in writing. Also, the majority of the students said they preferred writing on the computer, or liked it equally to printing or handwriting their essays. However, only about one-third of the students reported less stopping due to constraints related to motor skills difficulties, activation, prior knowledge, attention, and motivation, when writing on the computer. Also, more students (eight) reported using strategic stopping – that is, pausing to plan, reread, or revise – when composing their longhand essay than students who reported using more strategic stopping when writing on the computer (two).

These preliminary findings about students' perceptions of their composition processes, coupled with our classroom observations of the students engaged in

composing, and our preliminary analyses of the computer and longhand baseline samples, led to our decision to continue to investigate computer-assisted writing over the semester. We think that asking the students about their perceptions about the composing process at multiple points over the semester might lead to some interesting insights about the writing difficulties experienced by LLD writers, as well as provide a trace of how the students' explanations about their composing processes change during the strategy intervention period.

Conclusion

Learning does not occur in a vacuum, therefore, our first goal in this project was to examine how strategy instruction is embedded within a regular English 8 classroom context by including a description of the sorts of structures and supports provided by the teacher. We have provided some preliminary information about the curricular and instructional strategy intervention supports in this paper. Further research will expand on this information and will also examine the classroom management supports provided by the teacher. Secondly, we wanted to find out about the students' perceptions of the barriers they think prevent them from being productive writers. We have, therefore, examined and presented here a small portion of the available data of students' cognitive and metacognitive understanding of their writing behaviours. Future research will concentrate on an in-depth examination of this data that will inform us about effective interventions to improve the writing of students with LLD. Thirdly, while research has shown that students can learn strategies and have improved their reading and writing ability as a consequence (Mothus 1997, 2001), we wanted to evaluate further whether students who participate in the writing strategy intervention make significant gains in the

quality of their expository writing. We would also like to know more about students' ability to self-regulate and generalize their strategy use. In future study of the data collected, we hope to identify appropriate self-regulation strategies and tools, and to implement them with the Foundations 8 students as well as with students in other settings. Further research will entail development of each of these strands to inform our understanding of students with LLD and their cognitive and metacognitive interaction with writing as well as their understanding of themselves as writers. By refining our strategy intervention approach, we expect to further enhance learning outcomes for these adolescents with reading and writing disabilities, and also to identify pedagogical and systemic changes that may be implemented in schools across the district to support the achievement of other such students.

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Table 1

Overview of the Study

Strand 1: Instructional Content and Process

Research Question: How is strategy instruction nested within the context of classroom instruction, and how does it interface with social processes and curricular materials?

Observational Categories

- Teaching of text structures of expository essays
- Teaching of the writing strategy (PAR)
- Adaptations of the writing process approach
- Selection, adaptation, and sequencing of curricular materials
- Social dynamics: Monitoring and managing behaviors
- Modelling, guiding, and fading of strategy support (self-regulation)
- Teaching and learning of computer-based writing skills (self-regulation)
- Teaching and learning of group process skills (self-regulation)

Sources of Data

- Teacher's reflections on instructional aims, implementation, curricular choices, and behavior management
- Record and samples of instructional materials used in class
- Field notes of observations of the class over the semester (approximately 20+ visits)
- Verbatim transcripts of selected audio-taped class sessions (approximately 10)

Strand 2: Students' Perceptions About Writing

Research Questions: How do students perceive the task of writing and themselves as writers, and what barriers do they perceive as inhibiting their writing productivity?

Baseline Longhand Expository Writing Sample and Interview

- "Special gift" essay
- Observation of writing process and time on task
- Individual student interviews about: 1) perceptions of writing this essay, 2) reasons for stopping, 3) perceptions of self as a writer, and 4) strategies for better writing

Baseline Computer Expository Writing Sample and Interview

- "What I would like to do when I grow up" essay
- Observation of writing process and time on task
- Individual student interviews about: 1) perceptions of writing this essay, 2) reasons for stopping, 3) comparison of writing on the computer versus longhand 4) strategies for better writing on the computer

Mid-semester Interview About Strategies Used in Essay Writing

- Whole essay: structure, organization, and cohesion
- Paragraph: structure and organization
- Revision strategies

Final Longhand and Computer Expository Writing Samples, and Interview

- "Pet" essay on computer
- Observation of "pet" essay writing process and time on task
- "Holiday" essay, longhand
- Observation of "holiday" essay writing process and time on task
- Individual student interviews about: 1) perceptions of writing these two essays, 2) reasons for stopping, 3) perceptions of self as a writer, 4) comparison of writing on the computer versus longhand, 5) strategies for better writing, and 6) an important thing learned in this class

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Strand 3: Selection and Implementation of Self-Regulation Strategies, and Evaluation of the Effectiveness of the Intervention

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Research Questions: To what extent does computer assisted writing facilitate strategic writing? Can these students use peer interaction activities effectively to scaffold their writing process? Do measures of written expository samples over the semester show gains in length, complexity, or semantic cohesion; or in a holistic measure of quality?

Self-Regulation of Writing Process and Strategy Application

- Ongoing classroom observation and dynamic assessment, leading to selection of which teacher supports to fade, and which approaches to self-regulation to encourage the students to use

- Comparison of computer-based writing processes and products with longhand writing processes and products (classroom observation and writing sample analyses)
- Observation of students' peer interactions, teaching of group process skills, and transfer of teacher-directed writing processes (pre-writing, drafting, revising, editing, sharing) to peer-supported approaches
- Students' perceptions about writing, writing strategy use, and what they learned in this class (from interviews)

Analysis of Writing Samples

Includes baseline longhand and computer writing samples, curricular writing representing various text structures and levels of self-regulation over the semester (four essays), the final longhand and computer writing samples, and the final essay exam:

- Length (in words)
- Syntactic complexity (count of T-units)
- Semantic cohesion (Struthers' Cohesion Checklist)
- Assessment of writing quality (BC Education Performance Standards – Writing)

Future Directions

- Comparison of Foundations 8 with regular English 8 students with respect to learning to use expository text structures in their writing, and learning and self-regulating use of the PAR writing strategy
- Pilot of the PAR writing strategy in an inclusive grade six/seven class

- Investigate wider systemic factors that impact on the implementation of strategy interventions, such as our reading and writing strategies, in a junior high school setting
- Follow-up on the outcomes in subsequent years of students who received strategy intervention in Foundations 8

Table 2

Students' reported reasons for stopping during computer composition as compared with longhand composition of essays

Positive Effect of Computer	***n***
• Less stopping due to linguistic constraints (organizing or sequencing, retrieval, encoding)	14
• Less stopping due to motor skills constraints	7
• Less stopping due to constraints of activation, prior knowledge, attention, and motivation	7
• More use of strategic stopping (planning, rereading, revising)	2
• Prefer writing on the computer, or like it equally to printing or handwriting	13
Negative Effects of Computer	***n***
• More stopping due to linguistic constraints (organizing or sequencing, retrieval, encoding)	4
• More stopping due to motor skills constraints	4
• More stopping due to constraints of activation, prior knowledge, attention, and motivation	6
• Less use of strategic stopping (planning, rereading, revising)	8
• Indicate dislike of computer for writing	3

Note: Total number of participants is 19. All except 3 students reported that they received some instruction in keyboarding in elementary school.

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